

PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

Improvements in or relating to Chair Seats, Screens and the like and Process of Making the same.

I, WILLIAM EARL McCULLOUGH, a Citizen of the United States of America, of Kenosha, in the County of Kenosha and State of Wisconsin, United States of America, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to chair seats, screens, and like articles in which a foraminous or woven material is maintained in a stretched condition within a frame, and to process of making the same.

In accordance with my invention, such articles are produced by stretching woven or like material between two closely fitting concentric frames and moulding a thermoplastic material about said frames so as to substantially conceal them and hold the woven or like material permanently under tension. A unitary structure is thus provided capable of direct application to a chair or similar article of furniture.

The mould in which the frame containing the woven or like material under tension is moulded, is preferably so constructed that the extrusion or flashing of the thermoplastic material into the area occupied by the woven material is substantially prevented, so that the finished article will present a clean-out appearance, greatly enhancing its commercial value.

The invention may be applied to the construction of caned chair seats and backs, window screens, sieves, collanders, cloth screens, and articles of a similar nature.

Some of the forms which my invention may take will now be described in detail with reference to the accompanying drawings in which:

Figure 1 is a plan view of a chair seat made in accordance with my invention;

Figure 2 is a similar view of a stool seat;

Figure 3 is a sectional view, taken along the line 4—4 of Figure 2, showing only the metal rings and the cane portion, separated from each other.

Figure 4 is a detailed cross-section, on

an enlarged scale, along the line 4—4 of Figure 2;

Figure 5 is a plan view of one of the retaining members; and

Figure 6 is a view of the other retaining member co-operating with the one shown in Figure 5.

In producing a caned chair seat, for example, I provide two metallic frames of suitable shape, one of which is slightly smaller than the other but conforming closely to the shape of the second one so that they may be slipped one within the other with sufficient room to hold woven cane, placed between the same, in a manner similar to the common embroidery frame. Such a structure, for example showing a rhomboidal caned chair seat is shown in Figure 1.

A central caned portion 10 is held within the two metallic frames (not visible in Figure 1), which frames, in turn, are surrounded and concealed by moulded covering 11.

For the sake of simplicity I will now describe, in detail, the actual steps of the manufacture of a substantially circular cane seat, such as may be used in a stool. The top view of the finished stool seat is shown in Figure 2, and comprises a central portion of woven cane 10 and a moulded rim 11, which, in turn, conceals the metallic rings about to be described. I provide two metallic rings 15 and 16 (Figs 5 and 6, respectively) which are preferably split at the points 15a and 16a, and are made of suitable strip metal which is rolled into shape. Solid rings of metal may, of course, be substituted for the rolled rings but I find that the rolled rings are cheaper to produce and, from a commercial point of view are preferable. Alternatively the joints may be welded to form solid rings.

The rings have approximately the outline as shown in the cross-sectional view in Figs. 3 and 4, the larger ring 16 having formed therein an annular groove 17 which co-operates with a corresponding groove 17a in the ring 15. This provides two substantially annular portions 17 and 17a, capable of being seated one within the other.

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The central cane portion 10, as most clearly shown in Figs. 3 and 4, is placed between the rings 15 and 16, whereupon the same are forced down upon each other so as to cause the cane 10 to conform generally to the shape of the annular portions 17 and 17a and to be held tightly wedged between the rings 15 and 16. In placing the cane between the two rings it is preferably soaked in water so as to become expanded and flexible, and on drying it will contract, become taut and tightly held between the two rings.

The assembled rings 15 and 16 with the cane 10 held therebetween are then placed in a mould in a hydraulic press, and a ring of thermoplastic material is thereupon moulded around the annular periphery of the rings, forming a moulded frame 11 surrounding the rings 15 and 16. It should be noticed that the moulded rim 11 does not completely cover the rings 15 and 16, but allows a small portion 18 and 19 (Fig. 4) to show on the inner side of the rim. The purpose of this is to prevent the moulded material from forming any substantial amount of flash during the moulding operation, provision being made for the formation of the essential flash at the outer periphery of the rim 11. When taken from the mould the entire structure forms a single unit and upon the drying of the cane, the same is held with drum-like tautness within the rings that are embedded in the moulded rim 11.

In assembling the rings 15 and 16, if they are of the split type, care is taken to have the splits in the same approximately at 180° to each other, so as to prevent undue spreading of the rings. These rings may be made either of steel, brass, zinc, or other suitable rigid material, and the rim 11 may consist of a thermoplastic resinoid material, such as the substance known under the registered trade name "Bakelite", or other resin capable of being converted into the infusible and insoluble stage.

I have not illustrated the die or mould used in producing these rims, as it is of the usual type of construction well known in the art of moulding and familiar to those engaged in the trade of producing such moulded part.

My improved chair seat is particularly applicable in the manufacture of moulded resinoid furniture, and while I have shown the same in plain and unornamental form, I wish it to be understood that the rim may be of ornamental outline and may likewise be provided with projections, flanges and other means allowing of rapid and easy assembly with the other structural parts of an article

of furniture.

Similarly constructed moulded forms having metallic inserts holding a web of material may be made in accordance with my present invention into sieves, window screens, filter frames, and the like by substituting for the cane such materials as woven metallic filter cloths, textile fabrics, tapestries, or the like.

My present invention may likewise be employed for the production of upholstered seats or their equivalents by the simple expedient of employing in place of the cane 10 two layers of a textile fabric. For example, the lower layer may consist of stout canvas, whereupon there is placed batting or other upholstery material, followed by a covering of tapestry or the like, the two fabric webs enclosing the batting being secured together by being wedged into the annular portions of the frames 15 and 16, in the manner analogous to that already described. The rings may thereupon be concealed and secured by moulding the rim 11 around the same, thus providing an upholstered chair seat or back cushion.

A further alternative is to employ, in place of the ring 16, a solid disc of metal provided with an annular groove similar to 17, padding or batting may be placed directly upon the metallic disc and the padding covered with a web of tapestry or the like, which, in turn, is held in place by forcing the ring 15 into the annular groove in the lower disc, and then moulding the rim 11, as already indicated.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A process of making chair seats, screens and like articles in which woven or like material is stretched between two closely fitting concentric frames and a thermoplastic material is moulded about said frames so as to substantially conceal them and hold the woven or like material permanently in position.

2. A process according to claim 1, in which the inner edges of the frames are left uncovered by the thermoplastic material so as to prevent extrusion thereof during the moulding operation onto the woven or like material.

3. A process according to claim 1 or 2, in which the woven or like material is pressed into a groove or channel formed in one of the frames by a projection formed on the second frame and fitting within the said groove.

4. A process according to claim 3 wherein the frames are of strip metal

rolled to shape.

Dated this 28th day of October, 1929.

5. A chair seat, screen or like article formed by the process according to any of the preceding claims.

A. A. THORNTON,
Chartered Patent Agent.

5 6. The improved chair seat, screen or the like and process of making the same substantially as specified.

7, Essex Street, Strand, London, W.C. 2,
For the Applicant.

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[This Drawing is a reproduction of the Original on a reduced scale.]

